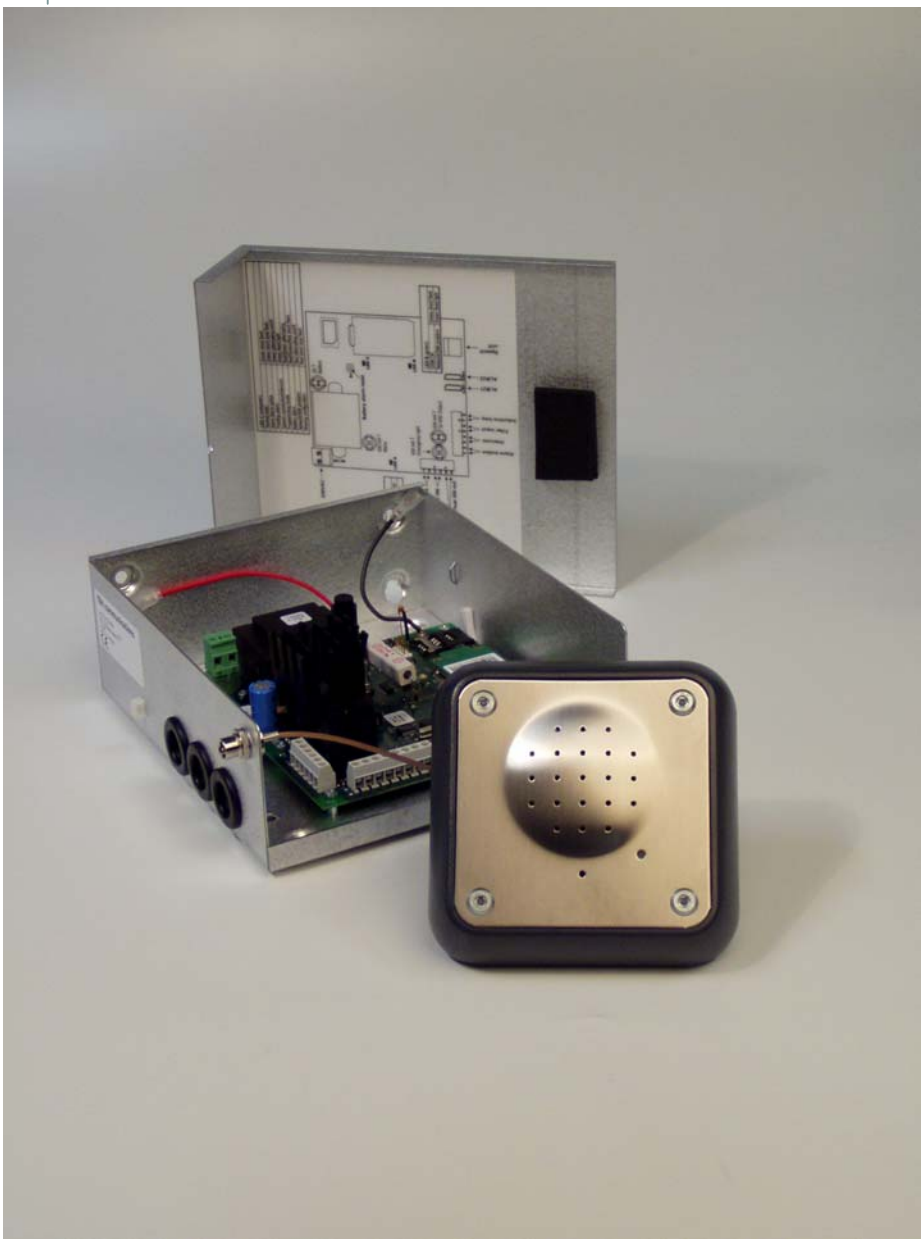
fält communications



Fält EC II GSM

Manual and installation instructions

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2 Notes

We would like to thank you for placing your confidence in Fält Communications AB and are convinced about the choice of one of our security products will fulfil your expectations. In order to operate this Fält EC II GSM correctly we would ask you to read this manual carefully.

3 Copyright

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3.1 Description of goods

Hereby Fält Communications certifies that this product is in compliance with essential requirements and with other relevant regulations that is evident of directive 1999/5/EG and the following standards.

Safety	(Article 3.1a in R&TTE)	EN60950-1: 2001
EMC	(Article 3.1b in R&TTE)	EN301489-1 EN301489-7
RF	(Article 3.2 in R&TTE)	EN301419-1 EN301511

CE

Umeå, February 2004

Torbjörn Hornliden
CEO, Fält Communications AB

3.2 Warranty

There is a 2-year warranty (24 months) for manufacturing failure or material failure commencing with the delivery date.

Warranty does not include:

- Incorrect or careless usage
- Damages caused by thunderstorms or air pollution.
- Vandalism or damage.
- Normal wear
- Emergency power supply battery

Fält Communications AB reserves the right to determine if the product will be repaired or replaced. Warranty ceases to be valid if defects occur due to incorrect use, or other method of application, or context that has been specified in this manual.

3.3 Updates

Visit our website to get access to the latest updates for market information and technical documentation. Following information can be found:

- Product surveys
- Market material
- Updated user manual
- Software and available updates
- Installation and maintenance instructions
- Contact information

http://www.faltcom.se/

3.4 Repair return procedure

Fält Communications AB only accepts returns, which are accompanied by a completed Service Card, which can be found in the section *Service form.* This form can also be downloaded from www.faltcom.se. If the product is purchased from one of our distributors the buyer must first contact the distributors for assistance. Please note that the battery cannot be enclosed at return of goods.

All returns must be sent well packed with freight paid to the address:

Service department
BL Elektronik AB
Furuhedsvägen 1
952 31 Kalix
Sweden

Repaired products are sent to customers as a regular post parcel with freight paid on the assumption that the product is included by warranty. If the investigation shows that there are no defects on the returned product the customer is charged with a service fee and freight charge. The customer can ask for a quotation for repair of product not covered by warranty.

3.4.1 Service form

SERVICE FORM

Used for equipment of type: DC/DC-converter, Emergency power supply KONE Direct II, KONE Direct III, KONE Direct GSM, Fält EC-II, Fält EC-II GSM

Return the equipment and a complete service form to:

Service department
BL Elektronik AB
Furuhedsvägen 1
SE-952 31 KALIX, Sweden
Tel +46 (0)923-667 20 **Fax +46 (0)923-125 40**
+46 (0)90-71 81 12 (Support issues)

Sender/Company name	Date
Address	Lift number/ID number
Zip code City	Lift phone telephone number
Country	Mechanic/Contact person
Order number	Telephone/Mobile

Note that not all information below is applicable for all products. Only complete the part valid for the product which will be sent to service

The problem was discovered:

☐ When mounting ☐ After an operation time of about ..... weeks

The lift phone was power supplied by:

☐ The telephone line ☐ DC/DC-converter ☐ External Emergency power supply ☐ 230 VAC

The lift phone:

☐ Was single mounted ☐ Shared telephone line with ..... number of other lift phones

The lift phone was:

☐ Connected via a switch ☐ Connected on a direct telephone line (PSTN)

The telephone line to the lift car was:

☐ A separate cable ☐ Inside the ordinary lift cable

Error description/Miscellaneous information:

2004-02-09 - v1.3

4 General

4.1 Contents of packing

Packing for Fält EC II GSM, Part No. 2129, contains following parts:

Central unit, Part No. 2117, includes:

- Manual and installation instruction (this document)
- Mounting screws
- Cable tie
- Modular cable, 3 meters
- GSM-antenna

Speech unit, Part No. 2127, includes:

- Frame
- Mounting screws
- Label

Battery, Part No. 2003

- Battery 12V 2Ah

Content of packing

4.1.1 Accessories

Following parts can be ordered separately from Fält Communications AB or from our distributors:

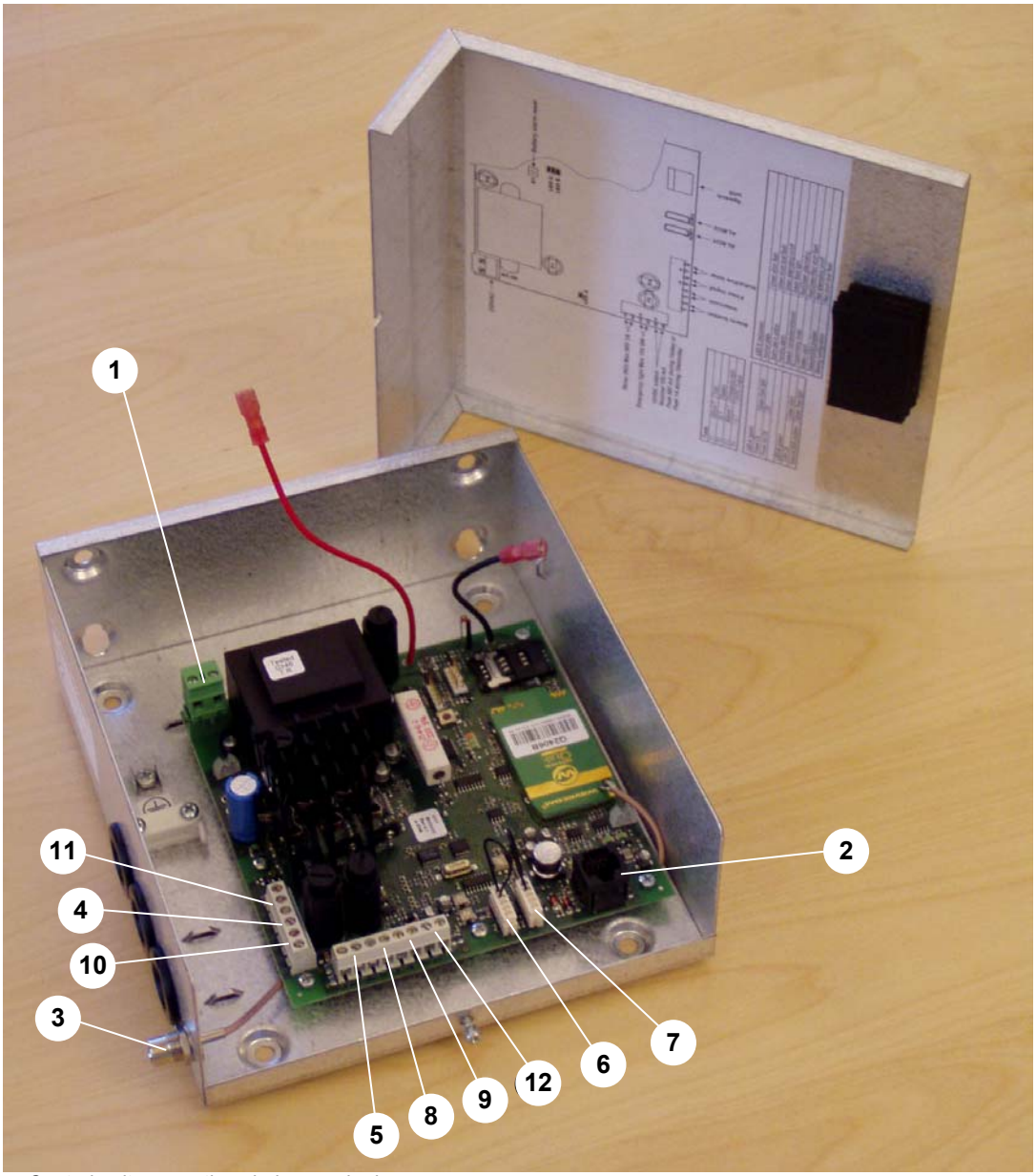
- Surface mounting alarm button with double-breaking function. Part No. 2042
- External alarm button with internal microphone (ALBU), 5m cable Part No. 2121
- External alarm button with internal microphone (ALBU), 8m cable Part No. 2122
- Emergency light 12V 5W Part No. 2112
- Battery 12V 2Ah Part No. 2003
- Telephone handset for intercom Part No. 2043

4.2 Technical data

4.2.1 Physical dimensions and functions

Data:	*Central unit – Part No. 2117*	*Speech unit – Part No. 2127*
Size:	185x200x75 mm	100x100x23 mm
Weight, excl. battery:	1780 g	280 g
Operating temperature:	+5°C to +40°C	+5°C to +40°C
Air humidity:	30 % to 90 %	30 % to 90 %
Enclosure material:	1,25 mm AluZink	1,5 mm stainless steel, vandal proof
Emergency power:	Battery 12V 2Ah	By Central unit
Power supply:	230V / 0,1A / 50-60Hz	By Central unit
Indication:	Three LED's, one is two-coloured	One two-coloured LED and sound
Antenna:	External 50 Ω	-
GSM:	Dual band 900/1800 MHz	-
Installation:	On top of lift car	Inside lift car
Programming:	By keyboard on Speech unit or remote programming	
Alarm button:	One ordinary and up to two extra with internal microphone (ALBU)	
Protocol:	CPC	
Signalling:	DTMF	
Speech switchover:	Duplex or simplex	
Test alarm:	Interval between 1-9 days	
Battery alarm:	Automatically	
Alarm reception:	Contact your local distributor for information of alarm centre can receive CPC-protocol. All standard telephone, including mobile phones, can also work as an alarm receiver.	

4.2.2 Connections on central unit



Central unit connections below marked

Function:	***Connection:***	***Data:***
1. Power supply:	2-pol. screw terminal block	230V AC 50-60 Hz
2. Speech unit:	RJ-45	
3. Antenna connection:	FME/f	
4. Emergency light:	2-pol. screw terminal block	Max 12V 5W
5. Alarm button 1:	2-pol. screw terminal block	
6. Alarm button 2 (ALBU):	5-polig SPOX 2,50 mm	Adapted for Part No. 2121/22
7. Alarm button 3 (ALBU):	5-polig SPOX 2,50 mm	Adapted for Part No. 2121/22
8. Intercom:	2-pol. screw terminal block	For standard telephone according to TBR 21
9. Filter connection:	2-pol. screw terminal block	Optional active high/low
10. 12VDC output:	2-pol. screw terminal block	Nominal load 100 mA/Max 500 mA
11. Relay output:	2-pol. screw terminal block	Max 50V 1A
12. Loop amplifier:	2-pol. screw terminal block	Signal between 50-100 mV/1 kΩ impedance

5 Introduction

5.1 Foreword

We recommend a carefully reading of this user manual before Fält EC II GSM is put into operation, to ensure that the product is used safely and effectively.

Fält EC II GSM should only be used in the context for which it is intended. All other form of usage will be considered as being solely the users own risk. Only qualified persons are permitted to install, program and start-up this product. Start-up is only allowed after the product has been properly installed. As a consequence Fält Communications AB disclaims all responsibility for possible defects, operational disturbance, accidents etc. caused by lack of knowledge or carelessness from the user. The same principle is valid for all not approved changes to the product.

Fält EC II GSM uses a GSM standard for mobile telephony. The product can consequently not be used in areas without satisfactory coverage. Since the GSM system is using radio based technology, disturbances may occur when using other telephone- or radio sets which are not sufficiently protected against radio waves. The product is following valid security standards for exposure of electromagnetic radiation.

Fält Communications AB reserves the right to make changes in the product for functional or commercial reasons. The company is not forced to immediately update reference manuals.

Fält EC II GSM <u>cannot</u> be used:

- *On places where there are an explosion hazard.*
- *On places where chemical substances are used in a greater extent with particular regard to safety rules for environments filled with unstable gases or fumes.*

5.2 Product description

The Fält EC II GSM is alarm equipment for the GSM network with built in duplex speech communication designed for installation in lifts. It complies with requirements according to EN81:1–2 and EN81:28. The product is CE-marked.

The system consists of two separate units, one central unit which is mounted on the rooftop of the lift and one speech unit that is mounted inside the lift car. The units are connected together with a modular cable. In the lift car, either the existing or a separate alarm button is connected to the central unit.

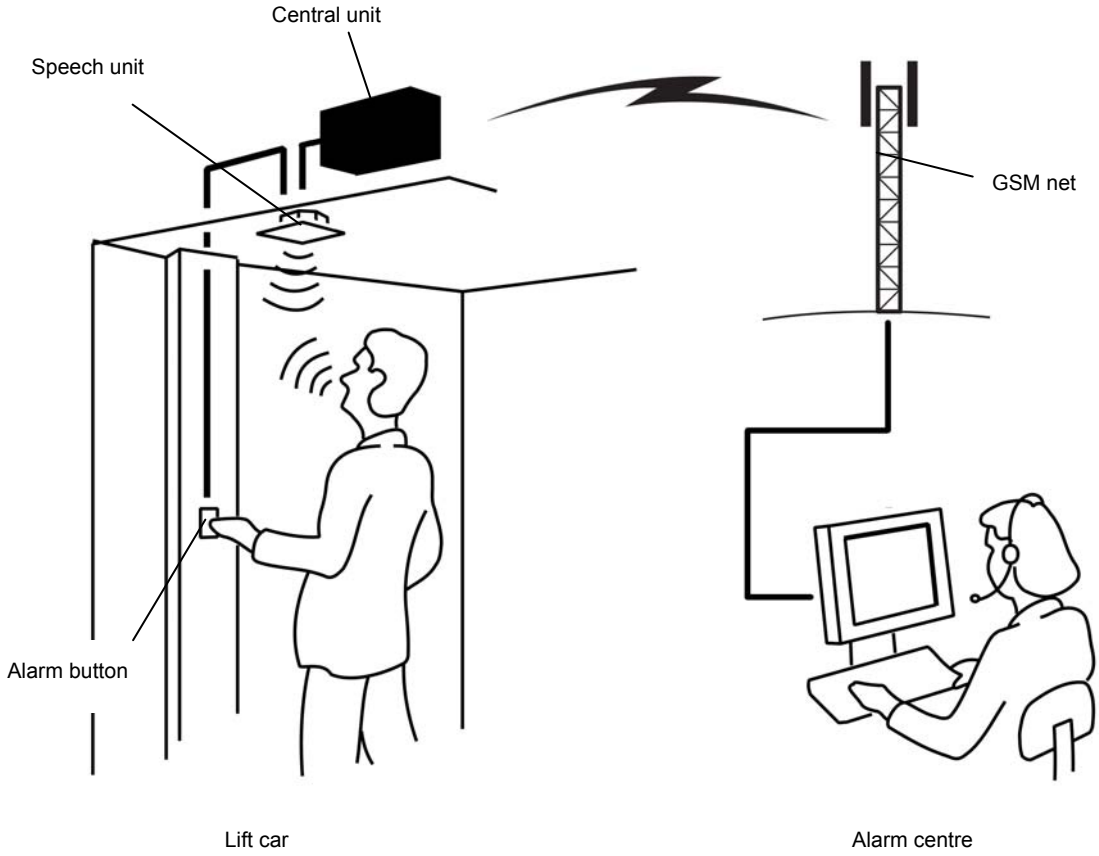
When someone inside the lift pushes the alarm button, the Fält EC II GSM automatically calls an alarm centre or a predefined alarm receiver and indicates where the alarm comes from. At the same time voice communications is established and the person in distress can speak directly to staff at the alarm centre from where help will be dispatched.

Fält EC II GSM is normally programmed via a keypad on the rear side of the speech unit but can also be remote programmed. Contact your local distributor or Fält Communications AB for more information.

5.2.1 Overview of Fält EC II GSM functionality

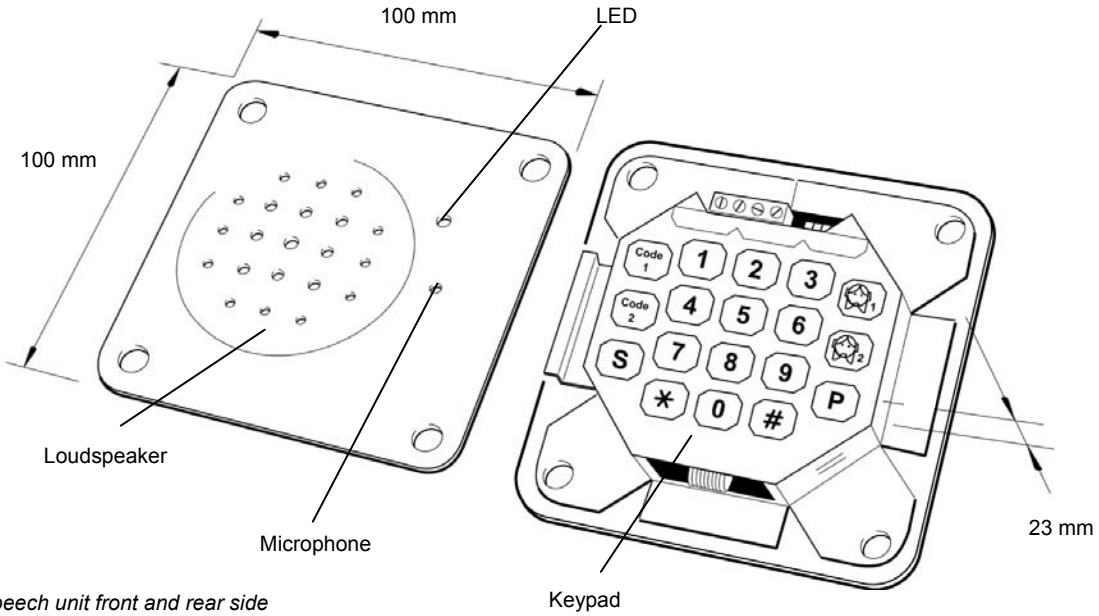
The central unit of the Fält EC II GSM is not visible to the passengers of the lift. It is mounted on the roof of the lift car. Its function is to initiate, transmit and monitor alarm calls from the speech unit in the lift to the alarm centre through the GSM network. The central unit contains a printed circuit board with a GSM module and an emergency power supply with associated battery. All external connections such as antenna, alarm button/s, mains power etc. are made to the central unit.

The visual part of Fält EC II GSM is the speech unit, where the user only sees the lift phone as a discreetly designed panel with perforated screen plate for the loudspeaker and microphone. On the lift phone front plate there is a two-coloured LED that indicates the alarm and the GSM network status. The space-saving design of the speech unit facilitates mounting within the lift car. Loudspeaker, microphone and keypad for programming are integrated in one single unit. This means quick and easy installation as well as high reliability in operation.
The speech unit is mounted on the wall or on ceiling of the lift car, which eliminates the need to make holes other than those needed for the modular cable. Interconnection of the central unit and speech unit is very quick and simple since a standard modular cable is used.



Fält EC II GSM is activated with a standard alarm button in the lift or, if required, with a separate alarm button. It is possible to activate Fält EC II GSM with up to two separate alarm buttons with built-in microphones. These alarm buttons are intended for mounting on top of or below the lift car to be reached by a trapped technician. When someone presses the alarm button for more than 5 seconds, the alarm calling process is activated in the Fält EC II GSM. Time delay is programmable between 1 and 30 seconds. Fält EC II GSM can call up to six

different alarm receivers or ordinary tone dialling telephones. Two alarm numbers can be programmed to use a special alarm code to identify Fält EC II GSM in an alarm centre.



Speech unit front and rear side

The rear side of the speech unit has a keypad for programming call numbers, function selection and testing. All such settings are made during the installation and, normally, no subsequent changes are required. It is however also possible to program the Fält EC II GSM remotely. Contact your local distributor or Fält Communications AB for more information.

To contact possible trapped persons there is the possibility to phone in to the Fält EC II GSM. Normally it is open for incoming calls but the function can be shut down or programmed so that it only allows incoming calls only after a lift alarm has occurred.

The built-in emergency power supply monitors and tests the battery regularly. If the battery is bad and needs to be replaced a battery alarm is sent to an alarm receiver. It is also possible to manually reset a battery alarm with a button on the printed circuit board on the central unit. The product cannot be used without a mounted and connected battery.

It is possible to connect the lift's emergency light to Fält EC II GSM, which automatically turns the light on when the mains power is cut off. When the mains return the emergency light is switched off. In the central unit there is a 12V DC output, which can be used for external equipments such as an alarm bell or a loop amplifier for hearing impaired people. The output is connected to voltage even after power failure, on the condition that the emergency power supply has not been disconnected from the battery to protect it against deep discharging. Together with the relay output on central unit, these two outputs can be used for, example, to activate an external alarm bell. The relay actuates every time any of the alarm buttons are activated.

There is a possibility to connect an intercom telephone to the central unit for communications between the lift car and, for example, the machine room of the lift. Most telephones can be used, but they must be approved for connection to the public telephone network (TBR21 approved). The intercom starts when telephone receiver is lifted and finishes when the telephone receiver is hung up. If a lift alarm should occur while intercom is in progress the lift alarm has priority and will disconnect the intercom.

Fält EC II GSM can be set to send an automatic test alarm to a dedicated test alarm receiver with an interval of 1–9 days. The alarm is send soundlessly and tests the electronics and reception quality of the Fält EC II GSM. If the test alarm should not occur, an alarm will be activated at the alarm centre and personnel can be sent to the lift to investigate and take care of possible defects.

To reduce the number of false alarms there is the possibility to connect Fält EC II GSM with the control equipment of the lift with the integrated filter input. Then it is possible to filter out all alarms attempts from the lift if the function is normal which reduces the workload on the alarm centre. For security reasons any external alarm buttons (ALBU's) are not included by the filtering.

There is the possibility to connect a loop amplifier to the central unit which makes it easier for people with impaired hearing to hear what is said in the speech unit. Check with your local distributor or Fält Communications AB for information about approved loop amplifier units to connect to Fält EC II GSM.

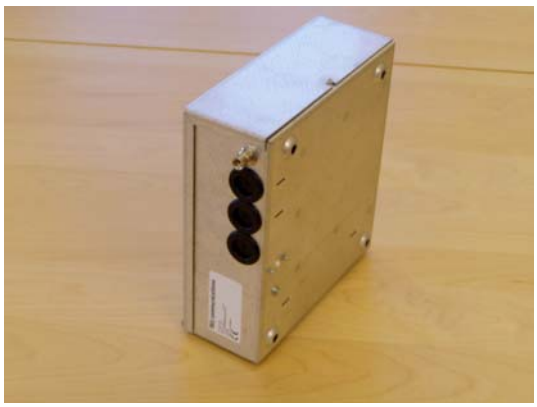
6 Installation

Only competent and qualified personnel may install the Fält EC II GSM. Knowledge, technical skill and correct equipment are required for safe and efficient installation.

> ***Warning!***
> *Mind your own safety when installing Fält EC II GSM. You must never work in an open lift shaft without a safety harness. Be extremely careful and break current if you work close to a voltage of 230-400V, e.g. in the lift engine room. Never disconnect a cable before you have made sure that it is not connected to any voltage. After installation the low tension cables (SELV) have to be bundled together so they cannot come near live wire or parts of the mains voltage if a connection loosens from terminal block.*

6.1 Installation of central unit

The Central unit is most easily mounted on the roof of the lift either in a lying or standing position. Ensure that is possible to connect, both to the electric system and the alarm button from the site of erection in the lift car. The central unit should not be mounted on top a lighting fitting that can raise ambient temperature and therefore shorten the lifetime of the battery. The enclosed mounting screws or other suitable screws should be used.

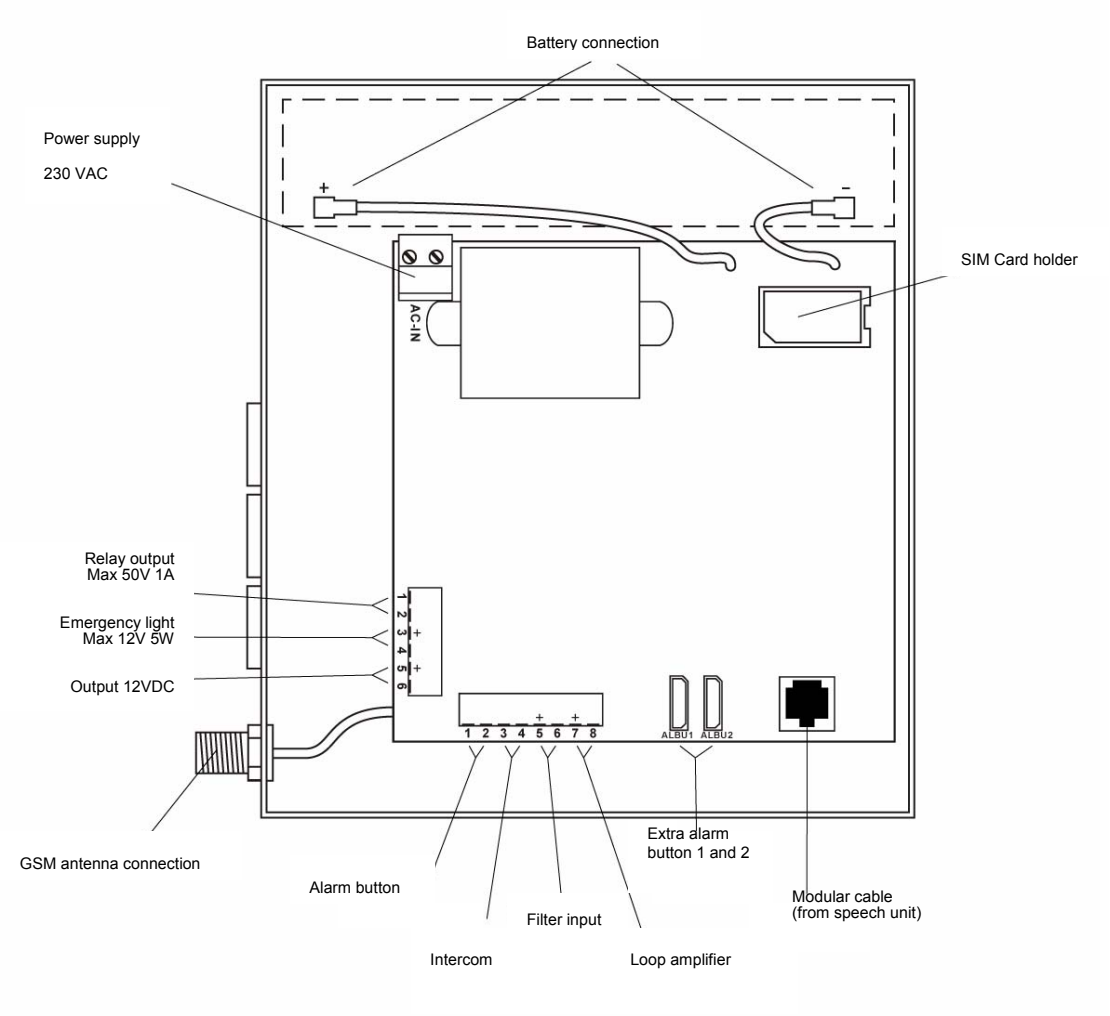


Standing installation

Lying installation

It is very important that the Fält EC II GSM has the best possible GSM-signal to prevent communication disturbances. Find the best possible position before mounting of the central

unit. Place a standard mobile phone in the imagined site of erection, make a speech connecting call and run the lift slowly through the whole lift shaft. If there is a disturbance or interruption of the call – choose another position and do the whole procedure again. Make sure that the same operator is used which is intended to be used by the Fält EC II GSM.



Connections in central unit

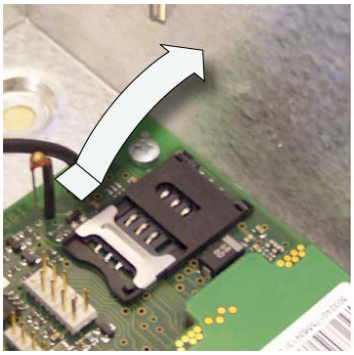
6.1.1 Power supply

The central unit is intended for fixed installation to input mains. The central unit must be connected to 230V AC and be fused with maximum 10A to the input mains. An easily accessible mains switch must be available for the input mains to the central unit. Both the input conductors must be fixed together and anchored with a cable tie 10 mm from the terminal and be well separated from the printed circuit board low voltage parts.

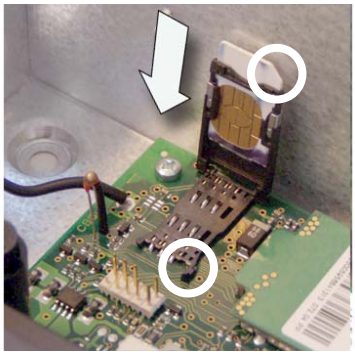
Mains which is switched on is indicated by a green LED on the central unit, see section *LED indication.*

6.1.2 Installation of SIM-card

Mains voltage must be **disconnected** during this stage! The SIM-card is mounted in the holder in the upper right corner of the printed circuit board. Make sure that the contact surfaces are facing downwards and that the holder is closed properly after mounting. Please note that the address book in the SIM-card must be empty because the address book is used as a memory during programming and existing numbers can destroy normal functionality.



1. Pull lock back and fold up



2. Place SIM card turned right side up

3. Fold down and pull lock forward

6.1.3 Connection of battery

The enclosed battery is mounted in the intended position in the enclosure of the central unit and battery terminals are connected to corresponding battery cable. For polarity – see picture in the section *Installation of central unit.*

Be sure not to mix up polarity!

Only batteries approved by Fält Communications AB of type sealed lead acid-batteries may be connected to the Fält EC II GSM. Other batteries could lead to danger for the user and/or damage Fält EC II GSM. Damages caused by incorrect battery types are not covered by warranty.

6.1.4 GSM antenna

The enclosed antenna is mounted in intended position in the chassis antenna contact on the external enclosure of the central unit. If there is a problem with sufficient GSM reception, improvement of the situation can possibly be achieved with another type of antenna. Contact your local distributor or Fält Communications AB for more information.

6.1.5 Connection of speech unit

One end of the enclosed modular cable is connected to socket in the central unit and the other end is connected to the speech unit.

6.1.6 Alarm button

A two-wire cable from the lift alarm button must be taken and the wires screwed to the central unit terminal block. Fasten the cable with cable ties on the outside of the lift.

Note that the alarm button in the lift car is normally double-breaking, i.e. made for two separate connections. One of them is usually connected to a local bell and the other one used for the Fält EC II GSM. The connections must be galvanic isolated. Contact your local distributor or Fält Communications AB for more information.

Note that the alarm button may have closing or breaking function. Breaking function is preferred and is the default setting for the Fält EC II GSM. If the alarm button has closing function, the Fält EC II GSM must be programmed to handle this, see section *Programming.*

If the lift does not have a double-breaking alarm button the build-in relay output in central unit can be used to activate an external alarm signal bell. If the lifts existing alarm bell is not connected to an emergency power supply it is possible to use the 12VDC output that is connected in series with relay output. Note that the current consumption of the alarm bell must exceed the declared value for the 12VDC output. To avoid misunderstanding only one alarm button should be mounted in the lift car.

There is also a possibility to mount two extra alarm buttons (ALBU) with built-in microphones on e.g. roof of the lift or under the lift car accessible, for example, to trapped lift technician. Contact your local distributor or Fält Communications AB for more information.

6.1.7 Emergency light

It is possible to connect an emergency light to Fält EC II GSM which automatically switches on when the mains power is lost. When mains returns the emergency light switches off. To extend the operating time on the lift phone the emergency light switches off after 60 minutes. The emergency light also switches off if no lift alarm is made within 20 minutes of mains failure.

Output is adapted for an emergency light on maximum 12V 5W. Use the lifts existing emergency light if it is not exceeds 12V 5W or contact your local distributor or Fält Communications AB for more information.

This output is protected with fuse as protection against possible short circuit, see section *Fuses in central unit.*

6.1.8 Intercom

For communications between lift machine room and the lift car there is a possibility to connect an intercom phone to the central unit. Most types of phones can be used as long as they are approved for connection to the telephone network (TBR21 approval).

A connection is made automatically when the receiver is lifted and the connection is cleared when the receiver is replaced. If a speech connected lift alarm is made at the same time as the intercom is connected, the intercom is connection is broken and the lift alarm calls out as usual. The Intercom is reconnected when the alarm call is finished if the receiver is still off the hook.

If an incoming voice call is made at the same time as the intercom is in use, the intercom will be disconnected and the voice communication starts. The Intercom is reconnected when the alarm call is over if the receiver is still off the hook.

If the intercom receiver is off the hook at the same time as a speech connecting alarm call is made, the intercom is not connected until the alarm call is finished. Test alarm and battery alarm functions as usual even if intercom is in progress. Intercom is not affected if the product is in alarm mode. When the intercom is active a tone is heard in the speaker of the speech unit every 10th second and is indicated by light signals both in speech unit and in central unit. Remote programming cannot be done at the same time as the intercom is in progress.

6.1.9 Output 12V DC

This output always supplies 12V DC, even if the product is operating on battery, as long as the emergency power supply is not shut off to protect the battery against deep discharging. The maximum load on the output is 100 mA (continuously) to not influence the battery operation time of Fält EC II GSM. For shorter periods it can be on load with up to 500 mA e.g. for the external alarm bell. If the lift does not have a double-breaking alarm button this output together with the build-in relay output on central unit can be used to activate an external alarm bell, which can be connected in series with relay output and 12V DC output.

The output is protected with fuse against possible short circuit and overload, see section *Fuses in central unit.*

6.1.10 Relay output

There is a potential free connection on the central unit with relay function. If one of the up to three alarm buttons is pressed down the relay output is activated and will remain activated as long as the alarm button is activated. The relay output is not affected by programmed alarm button delay or if filter function is activated. The relay output is of the type normally open (NO) and may be on load with maximum 50V 1A.

This output can be used to activate an alarm bell if the lift existing alarm button not is of double-breaking type. See section *Output 12V DC.*

6.1.11 Filter input

To reduce the number of false alarms, It is possible to connect the Fält EC II GSM to the control equipment of the lift via the built-in filter input. By letting the lift decide if lift alarm should dial out; the number of false alarms can be reduced. For this to function the control equipment of the lift must be able to generate a signal that the Fält EC II GSM can use. Possible additional-connected alarm buttons (ALBU) are not affected by this filtering.

The function is activated with a special programming sequence, see section *Programming.*

6.1.12 Loop amplifier

To enable passengers with impaired hearing to communicate with alarm centre there is a possibility to connect a loop amplifier. Contact your local distributor or Fält Communications AB for information about approved loop amplifier to be used with Fält EC II GSM.

The loop amplifier output on Fält EC II GSM has a signal level of 50-100 mV and an internal impedance of 1 kΩ. Suitable load impedance is 10 kΩ. The output can be short circuited without causing any damage.

The loop amplifier must work during power failure. Connect it to a power supply that is working during power failures. It can be connected to the Fält EC II GSM's own 12V output only if it fulfils the requirements which are described under the section *Output 12V DC.*

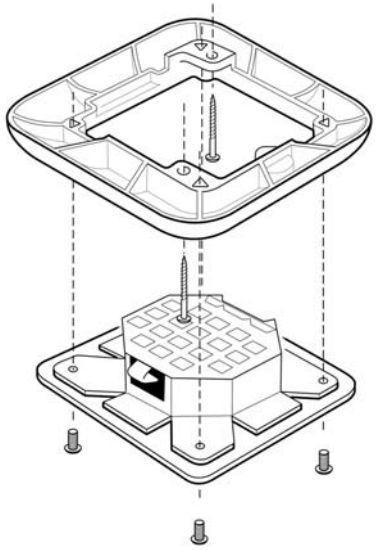
6.2 Installation of speech unit

Select a suitable place for the speech unit. Avoid installing it in a corner or behind anything that may reflect the sound. This might lead to acoustic feedback instability between the loudspeaker and the microphone.

Make sure that you do not saw or drill in existing cabling when you make holes!

6.2.1 Frame mounting

Mark and pre-bore the holes for the speech unit frame at suitable position according to enclosed drill template. Drill the holes for the modular cable to reach modular contact on speech unit. The modular cable cannot be led between the keyboard and the lift wall because the distance between the keyboard and the wall is too small when the speech unit is screwed into the frame. This requires the hole for the modular cable to be drilled next to those of the edges of the frame, see the enclosed drill template.



Mounting of speech unit in the enclosed frame

6.2.2 Recessed mounting

There is also a possibility to mount the speech unit without frame, so called recessed mounting. Drill a hole in the centre of the selected place and then make a hole with a 86 mm rotary hole saw or drill. See the enclosed drill template. Mark the holes for the mounting screws and pre-bore.

6.2.3 Mounting behind button and display plate

There is a special version of the speech unit which is specially designed for mounting behind a button and display plate. This alternative is only possible if there is already a prepared space for a lift phone behind the button & display plate. Since the design of the display may vary, we are not able to give exact mounting instructions here. Keep in mind that the microphone hole must be aligned with a hole in the display plate. It might become necessary to drill a new hole. For the best sound quality, the distance between the speech unit front plate and the display plate should not exceed 1 mm.

7 Emergency power supply

Fält EC II GSM has an integrated emergency power supply that ensures the product works by mains failures by connecting the built-in battery. It also allows connection of emergency light and operation of possible external equipment such as external alarm bell or similar.

7.1 Battery

Only sealed lead-acid batteries approved by Fält Communications AB may be connected to Fält EC II GSM. Other batteries may cause danger to the user and/or damage the Fält EC II GSM. Damages caused by incorrect battery types are not included by warranty. Battery life-

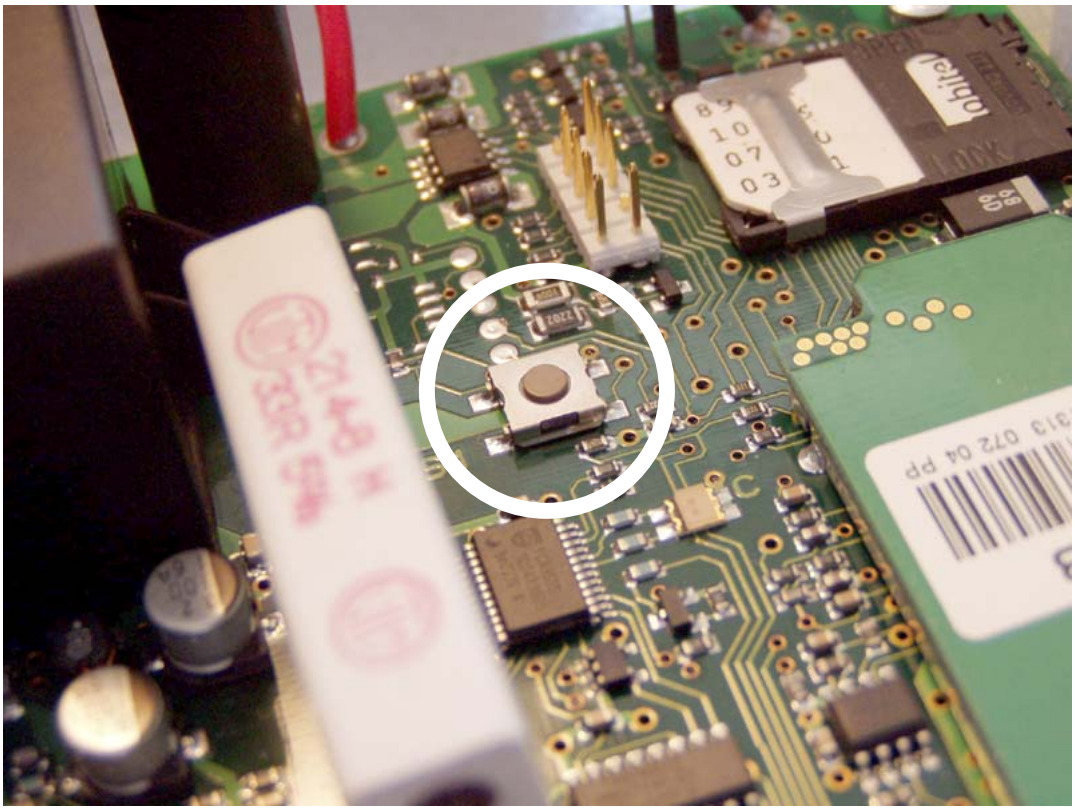
time is normally 3-5 years and it should be replaced after that. If the products temperature range is exceeded it may influence the battery lifetime.

The battery in Fält EC II GSM contains substances harmful to the environment, mainly lead and sulphuric acid. Therefore scrapped batteries may not be thrown away with ordinary garbage but must be disposed of in a responsible way. Follow the regulations from the environmentally responsible local authorities which are valid at the time of disposal. As a rule, the same procedure may be used which are applied for the disposal of car batteries, because the Fält EC II GSM battery is designed in a similar way.

The Fält EC II GSM may not be used if the battery is not mounted and connected, but the battery can be replaced during operation. If battery is replaced during operation the battery alarm can be activated but the reset button S1 can reset the battery alarm. If the battery is mounted with reverse polarity the equipment will not be damaged but a battery alarm will be activated.

After battery replacement it is recommended that the reset button S1 on the printed circuit board of the central unit should be used. It will recharge the new battery completely and test it.

The battery can operate the equipment for at least 60 minutes as long as the current consumption for various connected external units does not exceed the specifications.



Reset button S1

7.2 Battery charging

The built-in battery charger checks that the battery is continuously charged and an empty battery is fully charged in a maximum of 14 hours. The battery charger is temperature compensated and has a limitation of current charging to prevent damages on battery when an empty one is mounted.

7.3 Battery test

The capacity of the battery is tested automatically every 14th day and the test can last up to 90 minutes depending on the condition of the battery. The better the battery the shorter the test. If the battery voltage by the battery test sinks below a certain level a battery alarm goes out. The first battery test is made after 17 hours of operation.

No battery test is made during ongoing power failure. An ongoing battery test is interrupted immediately if a power failure occurs or if battery voltage sinks down below a certain level.

7.4 Battery alarm and reset alarm

The Fält EC II GSM sends out a battery alarm to indicate that the battery is bad. The Battery alarm is completely silent, an active battery alarm is indicated by a light signal on the speech unit and on the central unit.

A battery alarm will be sent out at any of following occasions:

- Battery voltage is sinks below a certain level at a regular battery test
- If voltage has not reached a certain level after 7 hours of charging
- If battery is mounted with reverse polarity
- If a battery cell has been short circuited
- If no battery is mounted

If a battery alarm has occurred the Fält EC II GSM automatically sends out a reset alarm at any of following of occasions:

- A regular battery test has been done without any problems
- The Reset button S1 on the printed circuit board has been activated

If a battery is replaced after the Fält EC II GSM has sent a battery alarm, you should reset the battery alarm by pressing reset button S1. If this is not done, a reset alarm will be sent out at next regular valid battery test, which can take up to 14 days. Until then the product will send a new battery alarm each 12th hour as a reminder.

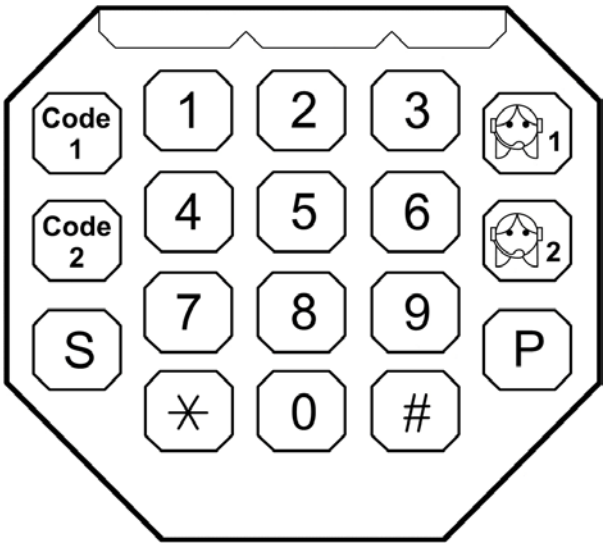
The Fält EC II GSM has protection against deep-discharging, which protects from deep-discharging damages at mains failure. This means that if battery voltage sinks below a certain level during battery operation the battery will be disconnected and Fält EC II GSM will be shut off. The Fält EC II GSM will be restarted automatically at the return of the mains.

Normally the 1st. alarm receiver is used as battery alarm receiver together with alarm code 1. However, it is possible to send all battery alarms to a special battery alarm receiver. See section *Battery alarm receiver*

8 Programming

All programming i.e. alarm numbers, codes to be sent and various function selections is done with the keypad on the back of the speech unit. For practical and ergonomically reasons it is recommended that all programming is done at (e.g. at a desk) before the Fält EC II GSM is mounted in the lift.

All programming which is done in the Fält EC II GSM is stored in the SIM-card and will remain in the Fält EC II GSM even after it has been dead. This means that if you change the Fält EC II GSM at, for example, a repair, no new programming is needed, apart from the PIN-code as long as the same SIM-card as before is used.



The keys on the keyboard of the speech unit have the following functions:

Programming – Starts and end of an all programming sequences.

Sequence receiver – Used when programming more than 2 alarm receivers.

Alarm receiver 1 – Phone number to alarm receiver 1

Alarm receiver 2 – Phone number to alarm receiver 2

Alarm code 1 – Used for alarm receiver 1, 3, 4, 5 and 6

Alarm code 2 – Used for alarm receiver 2

The other keys have the same function as on a standard telephone.

At each time the keys are depressed in programming mode a short tone is heard and after each programming sequence, there is a 4-tone for successful and a 1-tone for unsuccessful programming.

The Fält EC II GSM can also be programmed remotely. Contact your local distributor or Fält Communications AB for more information.

8.1 Standard functions

Below follows a description of the most frequent programming sequences, which will be used by programming the Fält EC II GSM. A number of special functions are presented below the next section.

8.1.1 Setup of programming mode

The Fält EC II GSM can be programmed only after it has been set to programming mode, which is done by pressing and hold down the button “P” or the button “0” for three seconds.
Active programming mode is indicated by a 4-tone from the loudspeaker of the speech unit and a flashing red/green LED both from the speech unit and central units. The flashing continues as long as Fält EC II GSM is in programming mode.

The programming mode is automatically disconnected after 30 seconds if no keys are pressed. It is possible to interrupt the programming mode manually by pressing:

P # P

8.1.2 Reset of Fält EC II GSM

If the Fält EC II GSM is moved to another building or if the alarm numbers are changed or if the unit has been incorrectly programmed; the best thing might be to simply delete all old settings. The PIN-code is not deleted. Reset all setting in Fält EC II GSM with:

P * 9 9 0 P

8.1.3 Programming of PIN-code

In order to be able to call out alarm calls from Fält EC II GSM the PIN-code of the SIM-card must be programmed. It is done with the programming sequence:

P * 4 0 0 * <PIN-code> P

Where <PIN-code> correspond to the PIN-code of the SIM-card. Note that at every start up the product tries to unlock the SIM-card. If an incorrect PIN-code is programmed the SIM-card will be locked after 3 attempts.

8.1.4 Setting for closing and breaking alarm button

Breaking function (NC) is pre-programmed. If the alarm button in the lift is a closing type (NO) Fält EC II GSM must be programmed for this with:

P * 0 2 0 P

Reset to alarm button with breaking function (NC) with:

P # 0 2 0 P

Note that possible other external alarm buttons (ALBU), which are connected, are not concerned by this programming.

8.1.5 Change of time delay for alarm button

You can change the time that the alarm button must be pressed down before an alarm is activated. The default time is 5 seconds, but this time may be changed between 1 and 30 seconds. Note that the selected time must always be shorter than the time posted next to the alarm button in the lift car. The delay is selected with:

P * 0 5 3 * <Time in seconds 1–30> P

The time delay does not include other connected alarm buttons (ALBU) but for them the alarm calls out immediately at activation.

Note that it is only the delay for activation, which is programmed, and the speech connection will need more time to establish.

8.1.6 Setup of alarm number and alarm code

For connection to an alarm centre, the phone numbers and alarm code specified by that alarm centre must be used. The alarm code tells the alarm centre which lift and which building the alarm comes from.

> ***Note that it is important that several numbers are programmed if it is not an alarm centre with constant manning!***

The Fält EC II GSM is always programmed in the same way, whether if it will call to an alarm central or to a telephone/mobile. An alarm code must always be programmed whether the Fält EC II GSM call should be to an alarm central or to a telephone.

1. If required, reset all old settings.

2. Enter phone number for alarm receiver 1:
   P <Phone number, max 20 digits> P

3. Enter alarm code to alarm receiver 1:
   P <Alarm code, max 10 digits> P

4. Enter phone number to alarm receiver 2:
   P <Phone number, max 20 digits> P

5. Enter alarm code to alarm receiver 2:
   P <Alarm code, max 10 digits> P

6. For alarm receivers 3–6 use the keys:
   S 3 S , S 4 S , S 5 S and S 6 S instead of under item 4.
   These numbers automatically get the same alarm code as alarm receiver 1.

> ***Note! Do not forget to test the function by making a test alarm!***

8.1.7 Test alarm to test the installation

After completed the installation, the Fält EC II GSM must be tested with a test alarm. Press the alarm button in the lift car and check that the alarm reaches alarm receiver 1.

To test that the alarm also reaches secondary receivers use the keypad on the back of the speech unit. Check that the alarm reaches alarm receiver 2 by pressing programming mode:

P [2] # P

Fält EC II GSM immediately leaves the programming mode and calls alarm receiver 2.

If there are more alarm receivers, test them by substituting [2] in the sequence above by S 3 S , S 4 S , S 5 S and S 6 S.

8.2 Special functions

Below there is a description of all other programming sequences, which can be used with Fält EC II GSM.

8.2.1 Automatic test alarm

By activating the function automatic test alarm Fält EC II GSM will call an alarm receiver with certain interval to check the connection. Note the function automatic test alarm may only be programmed if the function is ordered by the alarm receiver.

Select the required test interval between 1 to 9 days:

P * 0 8 0 * <1-9> P

Enter alarm code for the test alarm receiver with:

P * 3 0 0 * <Phone number, max 20 digits> P

Enter alarm code for the test alarm:

P * 3 0 1 * <Alarm code, max 10 digits> P

The first regular test alarm calls 5 minutes after completion of programming mode. After that the next test alarm calls after 10 hours and then next test alarm calls out after programmed test interval. The delay in 10 hours is there to move test alarm calls to the evening when the tariff usually is lower than daytime.

Test the test alarm function, by in programming mode enter:

P * 3 0 0 P

Programming mode is completed automatically and the Fält EC II GSM sends immediately to the test alarm receiver. Note that the test alarm is not speech connected. To check if the test alarm has reached the receiver you have contact the alarm centre.

Push following sequence to disable automatically test alarm:

P # 3 0 0 P

The Test alarm is sent out even if battery alarm is active and during battery operation. If a test alarm fails, next the attempt will be made after 10 minutes. Totally 10 attempts will be made.

8.2.2 Answer function

It is possible to phone Fält EC II GSM to talk with the person who is in the lift. Normally the function is activated but the function can be disabled with:

P # 1 4 0 P

The function is reactivated with:

P * 1 4 0 P

8.2.3 Alarm mode

If alarm mode function is programmed it means the Fält EC II GSM can only receive incoming calls when the alarm mode is active. To activate the alarm mode the following conditions must be fulfilled:

- Alarm mode function is programmed
- A lift alarm has been called out

The active alarm mode can only be disabled by the phone, which receives the lift alarm, or from the phone, which calls to Fält EC II GSM. See section *Alarm reception* or *Calling Fält EC II GSM.*

Alarm mode function is programmed with:

P * 1 4 1 P

Alarm mode function is disabled with:

P # 1 4 1 P

An active alarm mode is indicated by light signals both in speech unit and in central unit. The active alarm mode is automatically disconnected after 6 hours but will be extended up to 6 hours if a new speech connecting alarm is made or if a call is made to Fält EC II GSM during this interval.

8.2.4 Battery alarm receiver

In normal cases the 1st. alarm receiver is used as battery alarm receiver together with alarm code 1. It is possible to choose to send all battery alarms to a dedicated battery alarm receiver with

P * 3 1 0 * <Phone number, max 20 digits> P

Enter alarm code for battery alarm with:

P * 3 1 1 * <Alarm code, max 10 digits> P

Test the battery alarm receiver function in programming mode by enter:

P * 3 1 0 P

After completed programming mode the Fält EC II GSM immediately call the battery alarm receiver. This test alarm is called out as a speech connecting alarm.

Push following sequence to finish sending all battery alarms to a dedicated battery alarm receiver.

P # 3 1 0 P

8.2.5 Simple phone acknowledgement

When the Fält EC II GSM sends an alarm to a phone or a mobile an acknowledgement must be made on the receiving phone. If there is no acknowledgement, Fält EC II GSM will call the next programmed alarm receiver after thirty seconds. See section *Alarm to a phone.* There is a possibility to simplify phone acknowledgement for alarm receiver by activating either of the functions *Simple phone acknowledgement* or *Disconnection of acknowledgement.* Read more under respective section.

Simple phone acknowledgement means that alarm receiver can push on any of the buttons 0-9 to acknowledge the call. Disconnection of call is made by pushing the button * or by replacing the receiver. The call is extended 180 seconds with any of the buttons 0-9. Manual speech switchover does not work. The function is activated with:

P * 3 2 0 P

The function is disabled with:

P # 3 2 0 P

8.2.6 Disconnection of acknowledgement

It is possible to completely disconnect the acknowledgement function. It means that receiving phone only have to lift the receiver. Disconnection will be made when the receiving phone pushes * or replaces the receiver. Maximum conversation time is 180 seconds and cannot be extended. Manual speech switchover does not work. Function is activated with:

P * 3 2 1 P

The function is disabled with:

P # 3 2 1 P

8.2.7 Change of PIN-code on SIM-card

Change PIN-code on SIM-card with the following programming sequence:

P * 4 1 0 * <old PIN-code> * <new PIN-code> * <new PIN-code> P

8.2.8 Unlock the SIM-card

If the wrong PIN-code is entered, the SIM-card will lock after three faulty trials. Fält EC II GSM will make an attempt each time it is connected to mains or when a new PIN-code is programmed. To be able to unlock the SIM-card you must have access to the SIM-cards PUK code. The SIM-cards PUK-code is stated in the documents from the GSM subscription. The SIM-card is unlocked with following programming sequence:

P * 4 2 0 * <PUK-code> * <new PIN-code> * <new PIN-code> P

8.2.9 Filter input

To reduce the number of false alarms there is the possibility to connect Fält EC II GSM to the control equipment of the lift via the built-in filter input. By letting the lift decide if lift alarm should dial out you can reduce the number of false alarms. In order to activate this it is necessary for the control equipment of the lift to be able to generate a signal which Fält EC II GSM can use. Check carefully in the documentation of the lift. Other connected alarm buttons (ALBU) are not influenced by this filtering.

It is possible to select two different types of activation, active high and active low. A high signal is defined as > 4V DC and a low signal is defined as < 3V DC. If for example active low is programmed and a 12V DC signal from the control system of the lift is connected to the filter input, the Fält EC II GSM will filter out all alarm attempts from the alarm button. If the lift stops because of an error and the control equipment of the lift makes the signal to the filter input to be low the next alarm attempt will result in an alarm call.

Activation of filter input as active high is done with:

P * 5 0 0 P

Activation of filter input as active low is done with:

P * 5 0 1 P

Filter input is disabled with:

P # 5 0 0 P

8.2.10 Programmable alarm type

Fält EC II GSM has a number of pre-defined alarm types for different types of alarms. Following alarm types are found:

Alarm type	Decimal	Hexadecimal
• Lift alarm	10d	0Ah
• Battery alarm	17d	11h
• Reset of battery	12d	0Ch
• Test alarm	26d	1Ah

However there are certain types of automatically alarm receivers, which cannot handle incoming lift alarms with alarm type 10d. With a programming sequence the alarm type for lift alarm is changed freely:

P * 6 0 0 * <Alarm type> P

The alarm type shall always be entered decimal and with two digits, 00-99. Reset of original alarm type 10d is done with:

P # 6 0 0 P

8.2.11 Change of security code

To be able to remotely programme Fält EC II GSM you must know the security code of Fält EC II GSM. At delivery the code is pre-set to 1111 but can be altered with the following sequence:

P ✳ 9 0 0 ✳ <old code> ✳ <new code> ✳ <new code> P

where <old code> and <new code> correspond to the old respective the new four-figured security code.

9 Alarm reception

It is recommended that all alarms from Fält EC II GSM should be sent to a manned alarm centre. In exceptional case it is possible to let a phone or mobile to be an alarm receiver. With alarms to a phone it is not possible to identify Fält EC II GSM with the programmed alarm code. Instead, for example, number display can be used to identify the calling Fält EC II GSM, if the GSM operator is offering that kind of service.

The person who makes an alarm from the lift could be in a panic situation and you cannot assume that the person can tell you where he or she is. The person can also talk a foreign language or having speech difficulties. Because of this we recommend always letting lift alarms go to automatic alarm receivers, which with help of the programmed alarm code can identify the lift.

If an alarm is sent out but not acknowledged within 30 seconds the call is disconnected and the next programmed phone number called after 10 seconds. Totally 10 attempts are made and if all fail the Fält EC II GSM returns to standby. The Fält EC II GSM calls the 1st. alarm receiver and then the next programmed alarm phone number. If, for example, three alarm numbers are programmed, the calling sequence 1-2-3-1-2-3-1-2-3-1 will be made. Is there only one alarm phone number programmed, all calling attempts are made to that phone number.

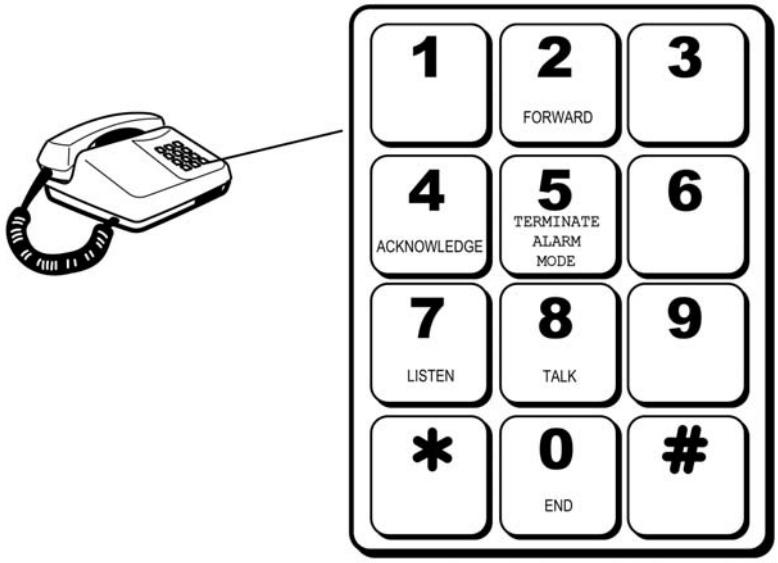
If an alarm button is pushed this has higher alarm priority during the calling sequence, The Fält EC II GSM will start again with calling attempts. Alarm button priority is in descending order: Alarm button 1, Alarm button 2 (ALBU) & Alarm button 3 (ALBU).

9.1 Alarm to a phone

All tone dialling telephones can work as alarm receiver. The keypad of the phone is used to control alarm reception and to acknowledge the alarm.

Note that phones, which are used for alarm reception, should be marked so that all people are aware of the possibility of alarm calls. Likewise the special functions, which exist for certain buttons on the phone, should be marked.

At an alarm situation it is not certain that a separate instruction is available. The most important button to learn is 4 to acknowledge the alarm and set up the call.



An incoming alarm call from Fält EC II GSM gives a tone chirp every 3rd second when the receiver is lifted. *It is important that everybody is aware of the opportunity with alarm calls.*

1. Acknowledge the alarm with 4 (ACKNOWLEDGE). A voice communications call is then set up and speech exchange is automatic, as in a normal telephone call.
2. If the automatic speech exchange is not satisfactory, you can change to manual speech exchange 8 (TALK) and 7 (LISTEN). Revert to automatic speech exchange by pressing 4 (ACKNOWLEDGE).
3. Is the function alarm mode activated and the product is in active alarm mode, you can finish it by pressing the key 5 (TERMINATE ALARM MODE). The call is automatically disconnected.
4. A call will be disconnected automatically three minutes after the last key pressing. With thirty seconds to disconnection, a warning tone will be heard every 5th second. To prolong the call, press 4 (ACKNOWLEDGE).
5. End the alarm call by pressing 0 (END). If the alarm is ended with time disconnection, replaced receiver, or lost contact and either *Simple phone acknowledge* or *Disconnected acknowledge* is programmed the Fält EC II GSM will make a new alarm call to the next programmed alarm receiver.
6. If you want to forward the alarm to the next alarm receiver, press 2 (FORWARD). Alarm is terminated and Fält EC II GSM calls next programmed alarm receiver.

Note that all alarm receivers should practise the alarm handling procedure!

10. Calling the Fält EC II GSM

If answering function is activated, or if alarm mode function is programmed, and Fält EC II GSM is in active alarm mode, it is possible make a call to Fält EC II GSM from a tone dialling phone or a mobile according to the following:

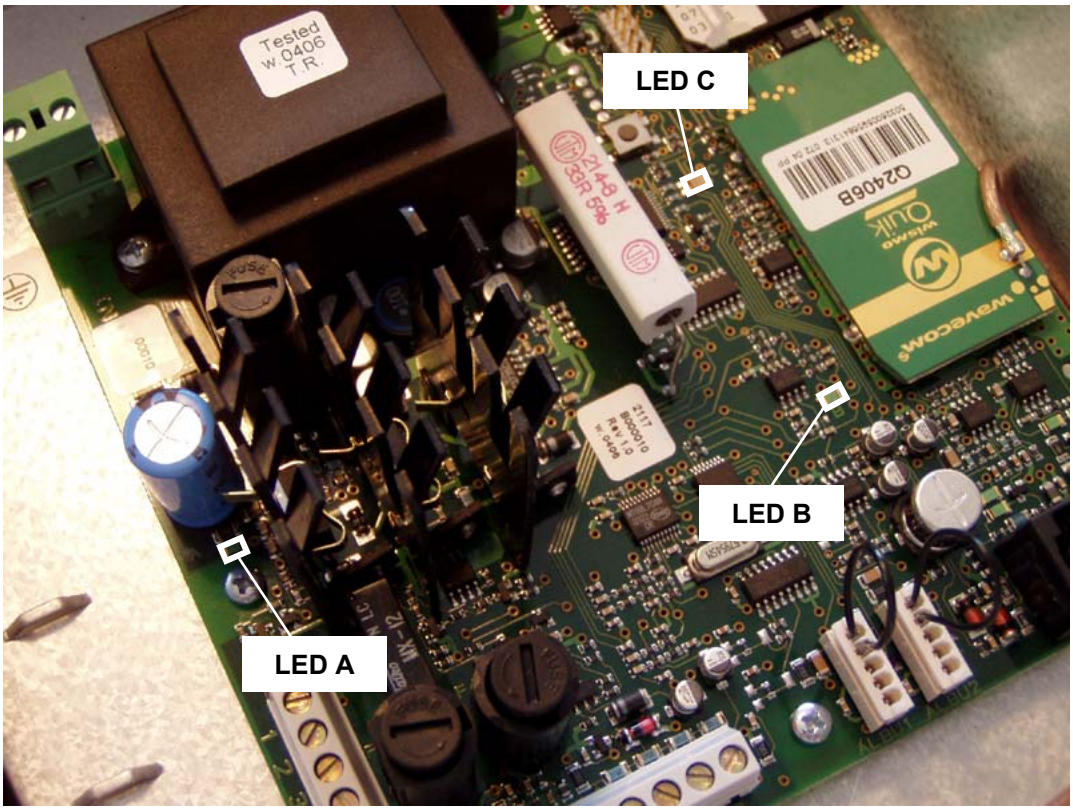
1. Dial the number to the Fält EC II GSM.
2. Fält EC II GSM answers after the first signal with a 4-tone.
3. Press 4 to activate voice connection, connect duplex and prolong an existing call with 3 minutes. If key 4 is not pressed within 30 seconds Fält EC II GSM is automatically disconnected.
4. Press 5 to terminate a possible active alarm mode. Then the call is disconnected.
5. Press 7 to listen.
6. Press 8 to speak.
7. Press 0 to disconnect the call.

The call will be in progress for 3 minutes or until disconnection with keys 0 or 5. Thirty seconds before time is ended it is indicated with a tone every 5th second.

11 LED indication

Status information on Fält EC II GSM is indicated with LED light signals. There is a two-coloured LED on speech unit and there are three LED on central unit, and one of them is two-coloured.

11.1 The three LED of the central unit



11.1.1 LED A – Green LED indicates mains voltage

Flashing sequence:	**Information:**
Green fixed light	External voltage connected
Switched off	External voltage missing

11.1.2 LED B – Green LED indicates function of GSM-module:

Flashing sequence:	**Information:**
Green short flash	Module connected to GSM net
Green fixed light	Network problem/ SIM-card problem

11.1.3 LED C – Two-coloured LED (red/green) with following information:

Flashing sequence:	**Information:**
Green short flash	Normal state
Green short dual flash	Active alarm mode
Green alternating on/off	Alarm have been registered/call is in progress
Green fixed light	Speech connection/intercom is in progress
Red/Green alternating	Programming mode

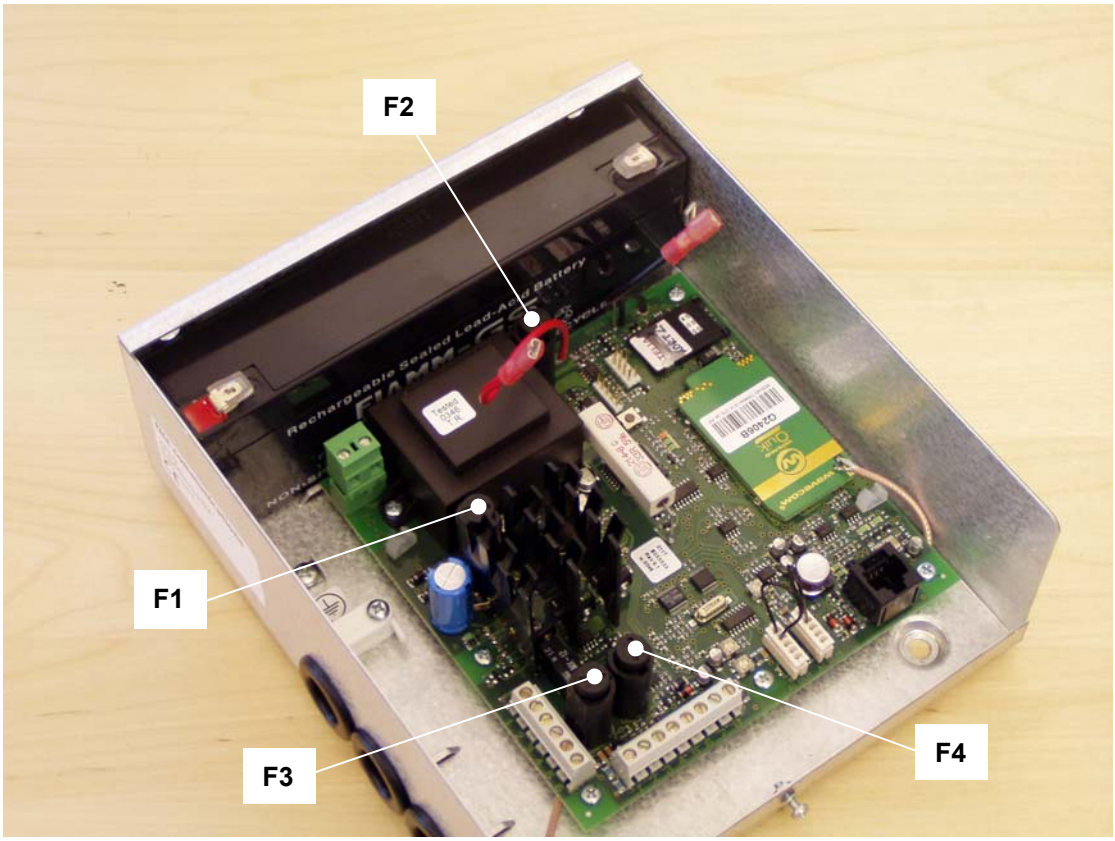
Red/Green/Red short flash	Battery alarm
Red alternating on/off	Network problem/ SIM card problem
Red short dual flash	Base configuration is missing

11.2 Two coloured LED (red/green) of the speech unit

In speech unit there is a two-coloured LED (red/green), which gives the same information as LED C in central unit.

Flashing sequence:	**Information:**
Green short flash	Normal state
Green short dual flash	Active alarm mode
Green alternating on/off	Alarm have been registered/call is in progress
Green fixed light	Speech connection/intercom is in progress
Red/Green alternating	Programming mode
Red/Green/Red short flash	Battery alarm
Red alternating on/off	Network problem/ SIM card problem
Red short dual flash	Base configuration is missing

12 Fuses in central unit



Four glass-tube fuses are mounted in central unit. All fuses are 5 x 20 mm, 250V AC, Slow (Littelfuse type 218). Replacement of fuses must be made with same type and value:

- F1 Secondary side of transformer 630 mA T
- F2 Battery 2 A T
- F3 Emergency light 630 mA T
- F4 Output +12VDC 250 mA T

13. Troubleshooting

The most frequent problems and how correct them, are set out below.

13.1 Fält EC II GSM is not possible to program

Check the following:

- Is SIM card mounted and PIN code correctly programmed?
- Is there external feed to Fält EC II GSM?
- Is the fuse F1 broken?

13.2 Fält EC II GSM is unable to call up

Check the following:

- Is there GSM network coverage in the lift shaft?
- Are both alarm receiver and alarm code programmed?

13.3 Fält EC II GSM calls up automatically at power on

The lift phone's alarm button has closing function but Fält EC II GSM is programmed for an alarm button with breaking function (or vice versa). Enter programming mode and select correct type of alarm button. See section *Programming.*

13.4 Whistling sound from loudspeaker at alarm sequence

If there is a whistling sound, when voice communications is set up during an alarm, this may be due to acoustic feedback. Acoustic feedback may appear if the microphone and the loudspeaker are installed too close to a flat surface, causing the sound to rebound between them. See section *Installation.*

13.5 Disturbances during voice communications

There may be problems with GSM coverage in the lift shaft. Try to move central unit or mount it standing to improve the position of the antenna. Another type of antenna might possibly be used. In worst case the GSM covering so bad that a fixed telephone line must be used. Contact your local distributor or Fält Communications for more information.

13.6 Technical support

Further technical support for Fält EC II GSM is available from your local distributor or via the homepage www.faltcom.se

14 Programming overview

Below follows an overview of all programmable functions in Fält EC II GSM. In the column to the right are possible normal values and normal settings specified.

No.	Programming sequence	Function	Def
1.	P # P	Deactivation of programming mode	
2.	P [1] < Phone No. > P	Programming of phone number to primary alarm receiver. Max 20 digits	----
3.	P [2] < Phone No. > P	Programming of phone number to secondary alarm receiver. Max 20 digits	----
4.	P [2] # P	Test of secondary alarm receiver	
5.	P [Code 1] < Alarm code 1 > P	Programming of alarm code 1. Max 10 digits	----
6.	P [Code 1] < Alarm code 2 > P	Programming of alarm code 2. Max 10 digits.	----
7.	P S < 3-6 > S < Phone No. > P	Programming of phone numbers to alarm receiver 3 to 6. Max 20 digits	----
8.	P S < 3-6 > S # P	Test of alarm receiver 3 to 6.	
9.	P * 0 2 0 P	Sets alarm input 1 to Normally Open	
10.	P # 0 2 0 P	Sets alarm input 1 to Normally Close	X
11.	P * 0 5 3 * < 1-30 > P	Delay time to activate alarm input 1. Unit in seconds.	5 sec
12.	P * 1 4 0 P	Activation of answering function	X
13.	P # 1 4 0 P	Deactivation of answering function	
14.	P * 1 4 1 P	Activation of active alarm mode	
15.	P # 1 4 1 P	Deactivation of active alarm mode	X
16.	P * 0 8 0 * < 1-9 > P	Time between test alarms. Unit in days.	----
17.	P # 0 8 0 P	Deactivation of test alarm function	X
18.	P * 3 0 0 * <Phone No > P	Phone number to test alarm receiver. Max 20 digits	----
19.	P * 3 0 0 P	Test of test alarm	
20.	P # 3 0 0 P	Deactivation of test alarm function	X

No.	Programming sequence	Function	Def
21.	P ✳ 3 0 1 ✳ < Code > P	Alarm code to test alarm receiver. Max 10 digits	----
22.	P ✳ 3 1 0 ✳ < Phone No > P	Phone number to battery alarm receivers. Max 20 digits.	----
23.	P ✳ 3 1 0 P	Test of battery alarm receiver	
24.	P # 3 1 0 P	Deactivation of battery alarm receiver	X
25.	P ✳ 3 1 1 ✳ < Code > P	Alarm code to battery alarm receiver. Max 10 digits	----
26.	P ✳ 3 2 0 P	Activation of simple phone acknowledge	
27.	P # 3 2 0 P	Reset of normal acknowledge sequence	X
28.	P ✳ 3 2 1 P	Disconnection of acknowledge	
29.	P # 3 2 1 P	Reset of normal acknowledge sequence	X
30.	P ✳ 4 0 0 ✳ < PIN code > P	Code to SIM card	----
31.	P ✳ 4 1 0 ✳ < Old PIN code > ✳ < New PIN code > ✳ < New PIN code > P	Change of PIN code to SIM card	
32.	P ✳ 4 2 0 ✳ < PUK code> ✳ < New PIN code > ✳ < New PIN code > P	Unlocking of SIM card due to faulty entered PIN code. Max 8 digits.	
33.	P ✳ 5 0 0 P	Activation of filter input, active high	
34.	P # 5 0 0 P	Deactivation of filter input	X
35.	P ✳ 5 0 1 P	Activation of filter input, active low	
36.	P # 5 0 1 P	Deactivation of filter input	X
37.	P ✳ 6 0 0 ✳ <Alarm type> P	Activation of programmable alarm type for lift alarm. Can be from 00d to 99d	10d
38.	P # 6 0 0 P	Reset of alarm type for lift alarm to 10d	X

No.	Programming sequence	Function	Def
39.	P ✳ 9 0 0 ✳ < Old code > ✳ < New code > ✳ < New code > P	Change of Fält EC II GSM security code	1111
40.	P ✳ 9 9 0 P	Reset all settings to factory mode	X

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